

UNITED STATES DISTRICT COURT

**DISTRICT OF NEW JERSEY
CAMDEN VICINAGE**

**IN RE PAULSBORO
DERAILMENT CASES**

MASTER DOCKET NO.:

1:13-CV-784 (RBK/KMW)

ALICE BREEMAN, *et al.*

Plaintiffs,

CIV NO. 1:12-07468 (RBK/KMW)

V.

**CONSOLIDATED RAIL
CORPORATION, *et al.*,**

Defendants.

**Plaintiffs' Brief in Support of their
Motion to Exclude the Expert Report and
Opinions of Defendants' Experts Schulman and DesAutels**

TABLE OF CONTENTS

	<u>PAGE</u>
Table of Authorities.....	iii
Rules.....	iii
I. Schulman and DesAutels’s opinion is not supported by good grounds, because their methodology is divorced from reality.....	1
II. Schulman and DesAutels’s expert opinion evidence should be excluded from evidence because it is unreliable.....	6
III. Conclusion.....	9
Certificate of Service.....	10

TABLE OF AUTHORITIES

<u>CASES</u>	<u>PAGE</u>
<i>Daubert v. Merrell Dow Pharms.</i> 509 U.S. 579 (1993)	7, 8
<i>Ky. Speedway, LLC v. Nat’l Ass’n of Stock Car Auto Racing, Inc.</i> 588 F.3d 908 (6th Cir. 2009)	7
<i>Pineda v. Ford Motor Co.</i> 520 F.3d 237 (3d Cir. 2008)	6
<i>Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co.</i> 161 F.3d 77 (1st Cir. 1998)	8
<u>RULES</u>	
Fed.R.Evid. 702	1, 6, 8

I. Schulman and DesAutels's opinion is not supported by good grounds, because their methodology is divorced from reality.

Plaintiffs hereby seek to exclude Defendants' expert opinion evidence offered by two air modelers from Exponent Corporation ("Exponent experts"), Lloyd Schulman, Ph.D. and Christopher DesAutels. Their opinion is unreliable under Fed.R.Evid. 702 because it is not based on any scientifically sound methodology. To form their opinion, these experts limited their methodology to the use of asserted facts which support that opinion but simply omitted from their methodology facts that refute the opinion. In this manner, they constructed an "air model" indicating that essentially no vinyl chloride was present in Paulsboro for an hour and a half following the release of 23,000 gallons of vinyl chloride into the atmosphere. They claim that the atmosphere in Paulsboro contained no vinyl chloride until 8:30 a.m., when personnel from Paulsboro Refinery arrived to take measurements, and measured high levels of vinyl chloride in the air.

Schulman and DesAutels's model provides a series of aerial "snapshots" with computerized overlays of the alleged location of the vinyl chloride "plume" which they use to opine that, within minutes of the 7:00 a.m. train derailment, virtually all the vinyl chloride had been blown eastward from Paulsboro to the wetlands situated west of the Mantua Creek. See Exhibit A (Exponent's "snapshots" of the vinyl chloride "plume" at the times indicated -- Schulman Dep. Ex. 25, 7:03 a.m.; Schulman Dep. Ex. 8, 7:10 a.m.; Schulman Dep. Ex. 32, 7:20

a.m.; Schulman Dep. Ex. 13, 7:30 a.m.; Schulman Dep. Ex. 33, 7:40 a.m.; Schulman Dep. Ex. 11, 7:45 a.m.; Schulman Dep. Ex. 12, 8:00 a.m.; and Schulman Dep. Ex. 31, 8:14 a.m).

The Exponent experts used the Computation Fluid Dynamics (CFD) model by which they purport to replicate the terrain of Paulsboro with great detail in order to show the 6-foot deep Mantua Creek “sheltering” the vinyl chloride away from Paulsboro. At the same time, though, they failed in their model to account for the fact that the thousands of houses, buildings, and trees in Paulsboro, all far taller than 6 feet, trapped the vinyl chloride, keeping it in Paulsboro and delaying its movement away from the area. Exhibit B, Exponent Report at p.12.

Based on ASOS data *from a single spot* -- the Philadelphia Airport (KPHL), averaged every two minutes -- the Exponent experts’ model attempts to show the direction of “prevailing” 2-mph winds, blowing initially from the northeast to the southwest, then from the southeast to the northwest, before shifting to blow to the east around 8:22 a.m. This hypothetical prevailing wind allegedly blew the vinyl chloride to the west, away from Paulsboro.

In contrast to Schulman and DesAutels’s hypothetical wind-direction model, Plaintiffs’ expert, Dr. Panos Georgopoulos, uses the hourly average (“METAR”) data from the *four* weather stations nearest to Paulsboro and establishes that the

vinyl chloride in fact remained over Paulsboro because there was *no* prevailing wind direction and conditions were calm.

Significantly, the Exponent experts did not consider the fact that ASOS data they use is taken at an elevation 26 feet above the ground at Philadelphia Airport, which itself is already 33 feet above sea level. Thus, their wind measurement, even if accurate, is only accurate to measure the wind 59 feet above sea level. Paulsboro, however, is essentially *at* sea level. Exhibit C, Georgopoulos Decl. ¶ 3.c. As the Exponent experts obviously know, wind velocities are higher at greater heights, and decrease the closer one gets to the ground. *Id.* Thus, a model that assumes the wind at ground level is the same as it is 60 feet in the air is completely unscientific. Quite simply, the Exponent experts' opinion as to the level of vinyl chloride in Paulsboro following the derailment lacks any scientific basis. There was no prevailing wind direction near ground level in Paulsboro that day. The vinyl chloride was not blown away by the wind; it remained in the air and was kept there by homes, buildings, and trees.

Furthermore, if using wind speed far above the ground as a measure of wind speed at ground level isn't unscientific enough, the Exponent experts "gild the lily" by arbitrarily tacking on to the ASOS wind-speed figure an *additional* 0.6 miles per hour (0.5 knots per hour). They attempt to justify doing so by contending the EPA recommends it. In fact, the EPA recommendation they rely upon is from a

completely different model used for a completely different purpose -- the AERMOD model, a regulatory model used chiefly to monitor buoyant (lighter than air) gases being released from stacks. Exhibit C, Georgopolous Decl. ¶ 3.d; Exhibit D, DesAutels Dep. at 31:15-33:19. There is no scientific basis for Exponent's experts to simply borrow the .6 mph factor from the inapplicable AERMOD model and, without any valid basis for doing so, insert it into their model for this case, which has nothing to do with monitoring buoyant gases released from stacks. Moreover, the Exponent experts *exclude* from their model clearly *relevant* data that is necessary to measure the effect of any purported wind in Paulsboro on the day of the derailment -- specifically, the ASOS data from three other nearby weather stations which, if Exponent's experts were to use it, would cause their model to show a chaotic pattern and no prevailing wind direction for the first 2-3 hours after the release. Exhibit C, Georgopoulos Decl. ¶ 3.b, and Exhibit C thereto. In other words, employing necessary facts and valid science would cause their opinion to self-destruct.

Finally, and perhaps most fatal to the reliability of their opinion, the Exponent experts' computer-modeled "snapshots" based on unscientific data create an illusion that is diametrically at odds with the ***actual proof*** that the fog hung over Paulsboro and remained there for at least 2-3 hours after the release: ***real*** photographs and videos ***taken at the time***, in which the cloud is clearly visible and

plain for anyone to see. These actual photos and videos are supplemented by statements of eyewitnesses who actually saw the cloud in the air. Only through a computer model like the one the Exponent experts have devised in the hope of hoodwinking the jury could anyone contend that the cloud described in the testimony and depicted in the actual photographs and videos had nothing to do with the vinyl chloride release since it is not reflected in the Exponent experts' model. Significantly, the Exponent experts *agree* that fog was, at a minimum, "enhanced" by the vinyl chloride release and, importantly, that once the fog had been created *the wind would have blown the fog in the same direction it blew the vinyl chloride*. Exhibit E, Schulman Dep. at 117:18-118:12. Thus, where the fog was visible, vinyl chloride was present. Exhibit F contains some of Exponent's "snapshots," together with the corresponding actual photographs taken at the same time (or within 1 to 3 minutes thereof). The photographs plainly show the fog (and thus the location of the vinyl chloride) on both sides of the Mantua Creek, while the Exponent model has all the vinyl chloride on the west side of the Mantua Creek. The Exponent experts also ignored or dismissed radio transmissions from first responders who reported that the fog was "going towards Delaware Street," meaning the wind direction was *opposite* to that predicted by the Exponent Model. Exhibit E, Schulman Dep. at 137-142:21.

Finally, and astonishingly, while modeling the terrain to a granular level so as to capture the 6 foot deep Mantua Creek channel, the Exponent model completely omitted the impact of the nearby Delaware River on wind direction. The Delaware is a mile wide at the pertinent point -- more than 30 times wider than the Mantua Creek -- and, as Dr. Georgopoulos notes, “[w]ind currents above a river, especially under conditions of low wind speeds, are affected by the presence of rivers, and both the direction and magnitude of air flow close to the surface change by aligning to those of the river current.” Exhibit C, Georgopoulos Decl. ¶ 3.a. (citing authoritative publications). Accordingly, the Delaware River’s current affected the direction of wind above the surface of the river, which lies between KPHL and Paulsboro. Given the vastness of the Delaware River and its established effect on wind currents, the Exponent experts, as a matter of valid science, could not just assume that the wind direction in Paulsboro was the same as it was at KPHL. Yet that is exactly what they did.

II. Schulman and DesAutels’s expert opinion evidence should be excluded from evidence because it is unreliable.

In considering pre-trial challenges to expert testimony, Rule 702 has “three major requirements: (1) the proffered witness must be an expert, *i.e.*, must be qualified; (2) the expert must testify about matters requiring scientific, technical or specialized knowledge; and (3) the expert’s testimony must assist the trier of fact.” *Pineda v. Ford Motor Co.*, 520 F.3d 237, 244 (3d Cir. 2008). The rule itself

provides that “[a] witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise *if*:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) *the testimony is the product of reliable principles and methods*; and
- (d) *the expert has reliably applied the principles and methods to the facts of the case.*

The focus must be solely on the methodology and principles used, not on the conclusions that they generate. *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 595 (1993). *Daubert* emphasized: “[I]n order to qualify as ‘scientific knowledge,’ an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation—i. e., “good grounds,” based on what is known. In short, the requirement that an expert's testimony pertain to “scientific knowledge” establishes a standard of evidentiary reliability. *Id.* at 590. Under the foregoing principles, the Exponent experts’ opinion does not rest on good grounds. It is unreliable and thus can be of no help to the trier of fact here.

A district court's task in assessing expert evidence is to determine whether the evidence “both rests on a reliable foundation and is relevant to the task at hand.” *Ky. Speedway, LLC v. Nat’l Ass’n of Stock Car Auto Racing, Inc.*, 588 F.3d 908,

915 (6th Cir.2009) (quoting *Daubert*, 509 U.S. at 597). Generally, "[t]he district court must consider 'whether the reasoning or methodology underlying the testimony is scientifically valid.'" Id. (quoting *Daubert*, 509 U.S. at 592-93). In this case, Schulman and DesAutel's opinion is not based on a reliable foundation, but on their subjective methodology, and thus is not "the product of reliable principles and methods" or the reliable application of legitimate principles and methods to the facts of the case. See Fed.R.Evid. 702.

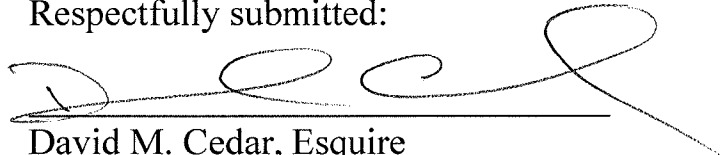
Daubert requires "that the proponent of the evidence show that the expert's conclusion has been arrived at in a scientifically sound and methodologically reliable fashion." *Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co.*, 161 F.3d 77, 85 (1st Cir. 1998). The Exponent experts' opinion was not arrived at in a scientifically sound and methodologically reliable fashion. Accordingly, their opinion should be excluded from evidence.

III. Conclusion

For all of the reasons given above, the expert evidence of Schulman and DesAutels should be excluded.

DATED: July 7, 2015

Respectfully submitted:

A handwritten signature in black ink, appearing to read 'D. Cedar', is written over a horizontal line.

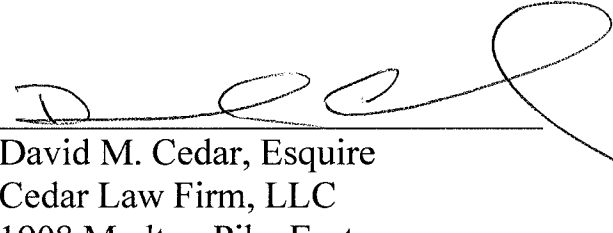
David M. Cedar, Esquire
Cedar Law Firm, LLC
1908 Marlton Pike East
Cherry Hill, NJ 08003
(856) 874-7500
dcedar@cedarlawfirm.com
Attorney for Plaintiffs

CERTIFICATE OF SERVICE

I certify that on today's date a true and correct copy of Plaintiffs' brief in support of Plaintiffs' motion to exclude the report and opinions of defendants' experts Schulman and DesAutels was electronically filed with the Court's CM/ECF system, which will accomplish service of same on all counsel of record.

Dated: July 7, 2015

By:



David M. Cedar, Esquire
Cedar Law Firm, LLC
1908 Marlton Pike East
Cherry Hill, NJ 08003
(856) 874-7500
dcedar@cedarlawfirm.com
Attorney for Plaintiffs